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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/036,048

12/31/2001

Xiao-Ming Huang

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EXAMINER

LOFTUS, ANN E

ART UNIT

PAPER NUMBER

3694

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/036,048	Applicant(s) HUANG, XIAO-MING	
	Examiner Ann Loftus	Art Unit 3694	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>12/31/2001</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 2, 3, 19 and 20 are objected to because of the following informalities:

The word port seems to refer to a portion rather than a city with sea traffic or a computer communications port. This contradicts common usage. Appropriate correction is required.

2. Claims 6, 11 and 15 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Claim 6 centers on establishing an account whereas the parent claim (1) implies that the account is already established. There is no subject matter that meets the parent claim that does not also meet this claim.

As to claims 11 and 15, being a customer is a criterion, thus all customers meet at least one criterion, thus the claims do not further limit the parent. As to claim 15, data on the customer is already received in the parent claim. Such data would be indicative of at least one criterion associated with the customer. There is no subject matter that meets the parent claim that does not also meet these claims. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

3. Claims 16 and 28 are objected to due to the term "credit permission category". The specification explains how this works if the banking tradition uses credit permission

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data, but it is unclear whether a co-signer would be an equivalent or not. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

In particular, the specification fails to explain how to determine weights for the factors such that the final score will have predictive value. An example is given showing weights but not how they were calculated; these weights may be best mode for Japan in 2001, however no technique is explained. Thus without undue experimentation, in any other setting, a person of ordinary skill in the art would have to figure out how to build their own model for their environment and customer base.

As to claims 1, 18, 29, 31 and 32, the method claimed uses a score that is indicative of said customer's likelihood of using said financial account in the future. A person of ordinary skill in the art would not know how to weight the factors in this

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method to produce such a score without undue experimentation. The remaining claims do not add information about how to weight the factors in the score.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 refers to establishing said financial account whereas the parent claim 1 refers to a customer already having the account. A method for determining the likelihood of a customer re-using a financial account would be a different invention from a method that determines the likelihood of a customer using an account not yet established. Thus the nature of the invention claimed is not clear.

Claim Rejections - 35 USC § 101

7. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. Claims 1-32 are rejected under 35 U.S.C. 101 as being directed to non-statutory subject matter, and thus ineligible for patent protection.

An eligible invention either physically transforms an article or physical object to a different state or thing, or produces a useful, concrete and tangible result. If a claim is not directed to an article or physical object, then a relevant test for eligibility is whether the claimed invention as a whole is limited to a useful, concrete and tangible result. Functional descriptive material in combination with an appropriate computer readable medium must also produce a useful, concrete and tangible result as well.

The MPEP 2106 IV C (2) gives the following guidance to judge whether a result is useful, tangible and concrete:

- Useful – must be specific, substantial and credible and specifically recited in the claim. If the claim is broad enough to not require a practical application, it must be rejected.
- Tangible – must have a “real-world” result, not abstract.
- Concrete – must have a result that is substantially repeatable or the process must substantially produce the same result again.

As to claim 18, the result of the method claimed is a comparison of a final score with a threshold that indicates a probability of whether a customer might re-use an account. This is an abstract theoretical probability and not a real-world action. The result is not tangible, thus the claim is rejected.

As to claim 29, the result of the method claimed is again a final score that represents an abstract theoretical probability.

The remaining independent claims are directed to a method that results in selecting a course of action. The specification and some of the claims elaborate that a

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course of action might involve a change in marketing or advertising strategy or mailing promotional pieces to the customer. A change in a mailing list or a change in what is mailed to a customer is a tangible result. Selecting a strategy is not tangible, but implementing a strategy with physical resources is tangible, and the specification supports implementing a strategy with mailings or other promotional efforts.

However, the result must also be substantially repeatable, or concrete. The method claimed would not necessarily lead to that same result if performed again, because considerable judgment is exercised in selecting the particular course of action. Experts given the same scores might select substantially different courses of action at the level of detail where the action becomes tangible. One might decide that a customer with a very low score (chance of re-use) should be abandoned in favor of marketing to those with a moderately low score. Another might decide on further analysis to identify the most profitable accounts with low scores and market only to them. Another might market to all scores below a threshold as equals.

If the method ends at selecting (an undetermined) course of action, it is repeatable and concrete, but not tangible. If it ends at a physical change in the marketing effort, i.e. the mailing list or the mailing sent to the customer, it is tangible but not concrete. Either way, the remaining claims do not limit the method to a useful, tangible and concrete result, therefore are rejected.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1- 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Friedland's article "Credit Scoring Digs Deeper into Data", Credit World, May/June 1996. (Vol. 84, Issue 5, p. 19).

As to claim 1, Friedland teaches determining data associated with a customer having a financial account and data regarding said account at the top of page 3. Among the inputs for a credit bureau risk score, he lists loan-to-value, which is account information, and credit history, which is customer information.

Friedland teaches determining a score from this data wherein the said score is indicative of a customer's likelihood of using the account in the future (a credit-bureau based retention score) in the section "Scoring to Retain Accounts" which starts at the bottom of page 4. In that section, he teaches selecting a course of action based on the score. Friedland does not specifically state that the retention score is based on customer and account data. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use customer and account data as inputs to determine a retention score in order to get a score with predictive value for a particular set of customer and account characteristics.

As to claims 18 and 24, Friedland teaches a threshold (cutoff) on page 4 in the section "Beyond Risk Assessment." Friedland does not specifically teach that a threshold might be used with a score indicative of a customer's likelihood of using the account in the future. It would have been obvious to a person of ordinary skill in the art when using a score to determine a course of action to develop a threshold and compare the score with the threshold in order to set a clear policy on what scores should prompt action.

As to claims 4, 18, 21, 22, 29, 31 and 32, Friedland teaches determining a plurality of weighted parameters and calculating a score from the parameters on page 3, in the section Industry Specific Pooled Data Scorecards. Friedland teaches using scores in combinations on page 2. Friedland does not specifically teach combining a customer score with an account score to get a final score. It would have been obvious to a person of ordinary skill in the art at the time of the invention to combine a customer score with an account score in order to get a score with predictive value for a particular set of customer and account characteristics, as well as make the best use of available data.

As to claim 5, 9 and 26, and 30 Friedland teaches strategy determined by a score indicative of re-use at the top of page 5. Friedland teaches promoting a financial product to a customer and targeting a customer with advertising materials based on scores on page 4, "Beyond Risk Assessment," paragraph 5. It would have been obvious to a person of ordinary skill in the art at the time of the invention to select a marketing strategy, promote a product or target a customer with advertising based on a

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score indicative of account re-use in order to retain the customer's business, since retaining a customer is generally cheaper than acquiring a new one.

As to claim 7, Friedland teaches receiving payments in the section "Maximizing Collections" on page 5.

As to claim 10, Friedland teaches loan accounts on the bottom half of page 2.

As to claims 11-15, and 25, Friedland teaches a criterion of a high level balance dropping to zero balance on page 5. This is a parameter associated with the account and the customer. Friedland does not teach a balance below a threshold amount. It would have been obvious to a person of ordinary skill in the art at the time of the invention that customers at risk of discontinuing use of their accounts would include those who paid off or were about to payoff the accounts, and that would include those with low balances. A threshold would need to be established in order to determine at what point to take action. It would have been obvious to a person of ordinary skill in the art at the time of the invention to calculate a score indicative of re-use for a customer with a balance below an established threshold in order to decide whether it was worthwhile promoting further services to that customer.

The remaining claims are rejected as dependent upon rejected parent claims.

11. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Friedland's article as above, and further in view of Asch's article "Credit Scoring: A Strategic Advance for Small Business Banking," Commercial Lending Review, Spring 1997 (Vol. 12, Issue 2), p18.

Friedland teaches the parent claim, as well as parameters and weighted scores as above. Friedland also teaches combining credit scores on page 2. The existence of an algorithm to combine scores is inherent in Friedland's report that they are used in combinations. Friedland does not specifically teach adding the scores. Asch teaches scaling the scorecard weights at the top of page 4. It would have been obvious to a person of ordinary skill in the art at the time of the invention that the scores could be scaled in such a way that adding them would make a meaningful final score, in order to combine commercially available scores into a score that best fit company needs.

12. Claims 8, 16, 17, 27, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Friedland's article as above, and further in view of Asch's article, and further in view of Official Notice.

Friedland teaches the parent claims. Asch teaches the sources of credit scoring data on page 3 as the credit application, personal financial statements, business financial statements, business bureau reports (Experian, Dun & Bradstreet), and consumer credit bureau reports (Experian, Trans-Union, Equifax.) Official Notice is taken that the credit scoring data available from these sources and from the account holder could easily include customer demographics such as, income, gender, credit history, credit rating, and other account data including revolving credit accounts, bonus accounts, credit permission, job type, insurance type, and size of household, as well as information relative to an account such as payment details, utilization, loan details, delinquent payments, an interest rate, minimum payment, and maximum balance. It

would have been obvious to a person of ordinary skill in the art at the time of the invention that this data could be used as input to credit scoring to indicate the likelihood of re-use of an account because this data would give a score with predictive value for specific customers and accounts that match the details given.

13. Claims 2,3, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Friedland's article as above, and further in view of an article by Bansal and Kauffman, "Comparing the Modeling Performance of Regression and Neural Networks as Data Quality Varies: A Business Model Approach," Journal of Management Information Systems, Summer 93,(Vol. 10, Issue 1), p11, and further in view of Official Notice.

Friedland teaches the parent claims, as above. On page 3, Friedland teaches combining data from two sources. On page 4, Bansal and Kauffman teach receiving credit scoring data by electronic communication, from a database, from an information provider. Bansal does not teach combining data received at two separate times. Official Notice is taken that credit data is often updated, which means that a first set of data is expanded and corrected by a second set of data. It would have been obvious to a person of ordinary skill in the art at the time of the invention that credit scoring data could be received by the above means, including at two separate times or from two sources and be used for a credit score that would indicate the likelihood of re-use of an account, in order to get the best combination of data available to suit price, timeliness and information needs.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: US Patents 6202053 by Christiansen et al, 6029153 by Bauchner et al, and 5940812 by Tengel, et al, and "How One Issuer Used Telemarketers To Save Wavering Credit Card Holders", Credit Card News (a trade newsletter published by Faulkner & Gray, Inc.), 12/15/1996.


15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ann Loftus whose telephone number is 571-272-7342. The examiner can normally be reached on M-F 8-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Trammell can be reached on 571-272-6712. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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ELLA COLBERT
PRIMARY EXAMINER